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Mar'yana V. Malchik[1]
Natalia B. Savina[2]

MODELING OF THE MARKETING BUSINESS-PROCESSES UNDER THE INDUSTRIAL ENTERPRISE'S COMPETITIVENESS REFLEXIVE CONTROL

1. Introduction

All modern enterprises face the challenge repeatedly of its rating rise and search of the new approaches and methods of its competitiveness increase at the stage of its business expansion. Competitiveness in Economics is versatile category presented on some levels; and close link and interdependence exists among them: goods concurentability, competitiveness of a producer, competitiveness of a group or association, competitiveness of a sector, competitiveness of a country, competitiveness of a macroregion and etc [Петров В. Конкурентоспособность, p.4-11).

2. The recent studies analysis concerning a given problem

Many foreign and native scientists, such as Ye.P. Golubkov, A.N. Pechienkin, A. Glukhov, P.S. Zavialov, G.L. Bagiev, T.A. Blashenkova, V.J. Yermolova, A.P. Gradov, V.S. Yefremov, T.M. Karetnikova, M.V. Karetnikova, I. Maksimova, N.I. Shaidurova, N.S. Yashin, A.Yu. Yudanov, J. Amel, I. Ansoff, R. Waterman, J. Kei, T. Kono, G. Mintsberg, M. Porter, F. Kottler, E. Dihtl, S.K. Pralad, R.T. Pascal, T. Peters, N. Pets pay attention to the problem of an enterprise's competitiveness examination. But, in spite of considerable quantity of works devoted to this problem there are certain difference in understanding of the category "competitiveness". Diversity of definitions, relativity, and also distinction of approaches to an assessment and analysis of the competitiveness differs essentially on its various levels.

1 Mar'yana V. Malchik – Doctor of Economics, Professor,Head of the Marketing Department, National University of Water Management and Nature Resources Use, Rivne, Ukraine, e-mail address: marianam@i.ua

2 Natalia B. Savina – . Doctor of Economics, Vice-rector on scientific work and international affairs, National University of Water Management and Nature Resources Use, Rivne, Ukraine, Tel. +38 096 564 0969, e-mail address: savina.natali@mail.ru.

3. Main part

The term "competitiveness" origins from the notion "competitiveness" and it symbolizes presence of a specified ability connected with the competition. That is, the notion of the competition is the basic towards with the notion of the competitiveness.

The Law of Ukraine "About Defense of Economic Competition" gives the following definition of an economic competition: "an economic competition (competition) is the contest among market participants with the aim of obtaining of advantages over other market participants due to own achievements; whereupon consumers, market participants have a possibility to choose among some sellers, buyers, and an individual market participant cannot specify conditions goods turnover at the market". It should be noted that this definition, declared at the legislative level, has too idealized character so far as the separate market participants in practice define conditions of goods turnover at the market. Nevertheless this definition reflects exactly an economic mechanism of the competitiveness at the markets of commodity and services, realized through the cooperation of suppliers and consumers at the market.

The term "co-opetition" or "cooptition" (English derivative "competition" and "cooperation") arises recently in scientific and journalistic English-speaking literature. This term means "assistance in a competition" or "a cooperation of competitors" and reflects the competitors' aspiration to step aside from the strict forms of the cost competition and principles of the "zero sum game" to the strategies of "mutual gain" when the cooperation of competitors makes it possible to gain extra profit. However, in spite of attractiveness of the thesis about the cooperation and mutual assistance of competitors such practice can have negative effects for consumers so far as the results of the "mutual gain" strategy are just achieved as a rule, at the expense of consumers (if these results are not stipulated by economy in costs which achieved at the expense of such cooperation).

Many definitions of the notion "competitiveness" presented in economic literature, because many authors who investigate the problems of the competitiveness assessment and management, prefer to specify the notion in accordance with specificity of their research. M. Porter draws a conclusion about absence of the single definition of the term "competitiveness" for various entities and objects.

Majority of existing definitions of the enterprise's competitiveness bases on the theory of competitive advantages elaborated by M. Porter; in accordance with this theory the company's competitiveness can be find out (estimate) only within the frameworks of the group of companies which belong to one sector or the companies which produce goods-substitutes.

The explanatory dictionary defines the term "competitiveness" as a capability to meet the competition and resist to competitors.

Some authors define the competitiveness as a possession by certain competitive advantages which concern either goods or enterprises. Competitive advantages are considered as the result of the enterprise's superiority over competitors in economic, technological and organisational sphere of activity; one can estimate such advantages with the

help of the specific economic indices (profitability, market share, etc.).

It is necessary to understand the enterprise's capability to guarantee its competitive advantages in conditions of adaptation to environment ensuring enterprise's stability and working efficiency.

The object of competitiveness control is ensuring of an enterprise's long-term superiority in competition with competitors at the product and capital markets and also material and non-material resources.

Neoclassic economic theory, investigated by such scientists as K. Menger, U.S. Jevons, L. Valras, J.B. Clerk, A. Marshall, A. Pigu, was the dominant theory during XX century in the sphere of solution of the problems of economic decision-making. The basic fundamentals of classical school are:

1) an economic man (entrepreneur, consumer, employee) tries to maximize his/her profit (usefulness);
2) an economic man is always rational and he/she does to the best advantages (rational expectations theory);
3) a market economic mechanism is perfect and market economy is capable to self-control;
4) limit values (marginal costs, marginal profit, marginal utility) are the main instrument of analysis.

However, conceptually right ideas of the classical theory do not confirm in practice. The wish of all economic unities to maximize their utility must lead to contradictions: improvement of one economic entity well-being causes to worsening of other economic entities well-being and it prevents to achievement of the stable balance. In accordance with majority of psychological theories, the motive to action occurs due to dissatisfied aspirations but not due to a desire to extreme maximization and disappears after their satisfaction.

The idea of the "rational economic man" is disputable too. Classical "rationality" supposes that the man considers the probabilities of possible consequences of his solution and chooses the alternative which would give the largest profit to him. Common sense suggests that the people make decisions by intuition or on the base of some available averages.

Some discrepancies of the neoclassic theory to empirical observations in the human behaviour were marked by such economists as T. Veblen, U.K. Mitchel, D.K. Gelbreit in the first half of the XX century.

These scientists made an assertion that spiritual, moral, legal and other factors considered in historical context are the driving power of economy. Human behaviour is moved firstly by institutions such as norms, customs of behaviour in society, and by institutes – as ascertainment of norms and customs in the form of laws, organizations, and establishments. Thereby, the institutional economic theory arose.

Institutionalists investigate economy as a part of the social system; they deny the principle of optimization in the human behaviour; they deny the "rational man"; they take into account the non-economic factors in the human behaviour; they attribute fa-

vourably to state interference into market economy. Institutionalists' ideas received support from the representatives of the later neoclassic theory (in the end of 70s in the USA; in 80s in Europe) and it originated the new institutional theory which absorbed the best theoretical methodological achievements of previous schools of economic thought either neoclassical or institutional. The theory of transactional costs and theory of contracts connected with it formed on the base of the R. Couz's work "Character of a Company". The problems of economic entities are considered in the K. Arrow and O. Williamson's works; such key notions as limited rationality of the entity's behaviour, opportunism and information asymmetry are determined by these scientists. G. Saimon substantiated the principle of limited rationality. The scientists J. Bjukenen and G. Tallock also consider the problems of opportunism and information asymmetry in their works. At last, the psychologist D. Kanemann with B. Smith got the Nobel Prize for combination of economics and cognitive science for explanation of irrationality the man's attitude to risk in decision-making and in management by his behaviour. The theory of prospects elaborated by D. Kanemann with A. Tverski, explains irrationality of the human choice.

Thereby, the modern economic thought is on the way of combination of the strong methodological apparatus of neoclassic school, general-purpose of the institutional theory concepts and usage of the social school developments in substantiation of decision-making by economic entities.

Modern research in psychology and institutional economic theory testify that essential part of subjectivity is in decision making by economic entities, but their decisions are not always reasonable. It gives a chance to open possibilities of impact on the customers' choice subjective component and it is much less unprofitable than making of global competitive advantage based on efficient superiority.

Thereby, use of the reflexive approach to control by economic entities, in particular, by an industrial enterprise is perspective. The reflexive approach of an enterprise's competitiveness means purposeful organisation of reflexive effects which could persuade the operated entity to make decision improving an enterprise's competitive positions.

G.P. Scshedrovitskiy and V.A. Lefevr are the founders of the reflexive approach. V.A. Lefevr's works ("Algebra of Conscience", "Reflection", "Conflicting Structures", "Formula of a Human") are the theoretical base for development of the methods of the reflexive management. Lefevr V.A. defined the notion of the reflexive management as the process of transfer of the decision-making grounds of one entity to another [Маклаков С.В. p.240]. Present type of management has not directive character; it influences indirectly on its ultimate consumer by means of transfer of certain information from one entity to other.

Therefore, one should understand the purposeful organization of reflexive impacts as the reflexive management; and these impacts try to persuade the manageable entity to decision-making predicting by the control system.

Informational support of the industrial enterprises' competitiveness reflexive control supposes ensuring with actual data all functional services in the system of an enterprise's reflexive control, and also use of information data for the automated control systems,

information for ensuring of an enterprise's different subdivisions activity. Ensuring with necessary information of the reflexive control system requires coordinated work of the competitive intelligence service, strategic planning department, marketing department, economic analysis department, reflexive control centre, information security, enterprise's PR-service and public relations department. Mass media are important in informational support of all structural subdivisions, because mass media are not only of great value but they can form public opinion influenced on managerial decisions. Information about suppliers, competitors, consumers, change of macroenvironment factors, received from different sources in the process of realization of an enterprise's competitiveness reflexive control, requires its systematization and concordance among various subdivisions according to the purpose prohibiting of its misinterpretation, duplication. Development of informational support of the industrial enterprises' competitiveness reflexive control must ensure efficiency of this system because it is one of the conditions of efficiency of reflexive influence realization. Necessity of such informational support development also connects with the possibility of formation of the automated systems of the industrial enterprises' competitiveness reflexive control on its basis. Information, input into this system, is necessary element of the system; and mathematical, technical, organizational-legal functioning is impossible without such element. Information, input into the automated system, its processing is the basis of the modern automated information systems. Moreover, informational support must be direct on satisfaction of information requirements of the personnel of the enterprise's various services and departments. All above-mentioned is the arguments to development of industrial enterprises' competitiveness reflexive control informational support.

Enterprise's informational support is considered as the system which consists of three components: information processing technologies, information resources, technical aids and software. Information resources are totality of data and knowledge necessary for managerial decisions making; information processing technologies are totality of means and methods of collection, recording, processing, accumulation of necessary data and bringing them to the user in the system of organization control on the basis of computer aids usage. The third component of informational support of enterprise's control is technical aids and software of economic operation of business. Software is presented with variety of existing system software products, special software products, and applied software which ensure efficient usage of information processing technologies and resources [Денисенко М.П. С. 19 – 25).

Choice of software is very important for modeling of the effective system of informational support of the industrial enterprises' competitiveness reflexive control. One can name the most known, effective and cost-based software of the company Infoservice BPwin (AllFusion Process Modeler) and ARIS 6.0 software products. They give a chance to ensure effectively and quickly the system of industrial enterprises' competitiveness reflexive control by necessary information.

BPwin contains two principal modules: AllFusion Process Modeler и AllFusion Modeeling Suite. The first module is the powerful instrument of modeling, which uses for

analysis, recording and reorganisation of the complex business-processes. It gives an opportunity to document clearly the various aspects of activity: necessary activity, means of its realisation and essential resources for realisation of this activity. We can easily determine inefficient, cost demanding or surplus activity with the help of this module. Process Modeler makes possible improving efficiency of work owing to simplicity of the model's components formation. All Fusion Modeeling Suite has the main advantage and it makes a chance to avoid quickly of unproductive activity, compare easily and intuitively with operating changes. It is easily to determine and then to improve, change and except inefficient, uneconomical or odd activity.

ARIS 6.0 software products are presented by the most known modules: ARIS Easy Design and ARIS Toolset. The first module is intended for the certain workers of the company who records their business-processes in the form of graphic models and it does not give a chance to obtain general idea about all enterprise's business – processes. This module has advantage because it is simple flexible instrument which does not require any special knowledge. Software product ARIS Toolset and its additional components give a opportunity to develop business-processes of all the company. ARIS Toolset gives a quantity of repeatedly approved methods of the business-processes modeling. It gives a chance to adjust easily the program to individual demands.

Information model describes data flows in functional and organization models that is among functional subsystems, links and the structure of enterprise's subdivisions [Хаймович И.Н. С. 933-939.] The methodology SADT (Structured Analysys Design Technique) belongs to the most known traditional means of construction of the models' complex systems. Today there are many instruments for SADT-diagrams plotting and one can divide them in two categories: universal instruments for diagrams' plotting and instruments oriented only on SADT-diagrams' plotting, which often include the means for functional requirements analysis. The first category of instruments (it consists of such instruments as Microsoft Visio, and a product distributed in accordance with GPL licence, Dia) gives a chance to create various diagrams from the great set of different entities. Universality of these instruments make them not suitable for modelling therefore analysts use them seldom for software engineering [Малиновский А.Ю, С. 204 – 206]

The second category consists of instruments worked out specially for the SADT-diagrams creation such as BPWin (AllFusion Process Modeler) and AI0WIN. These products use extensively for modeling of functional requirements to the system but their structure does not give an opportunity to use these instruments for expansion of existing notation [Norman O. p.53].

SADT includes both the conceptual approach to systems' models construction and the set of rule and graphical symbols for their description. Special methodologies for the information models' construction can apply for solution of peculiar tasks. For example, the IDEFIX models apply for the detailed description of information flows, but the IDEF/CPN models are recommended for construction of the dynamic models which reflect causality among the system's objects [Марка Д. p. 140]. If the description of the

systems is especially important from the point of view of the performed functions by them then the methodology IDEF0 applies best of all for these purposes.

4. Conclusions

This methodology is the most reasonable for constriction of information models of ensuring of the industrial enterprises' competitiveness reflexive control because it is the low-cost methodology and it capable to give the obvious picture and ensure interconnection of all processes, functions, information flows, instruments and the enterprise's structural subdivisions.

As it was known before, the package BPwin has some advantages in comparison with other software environment. Besides it gives a chance to automatize the processes of formation of the structures and graphic displays, created functional models and thus to automatize initial stages of the complex data systems designing. Such package enable also to conduct an analysis of the project for completeness and consistency. Usage of the methodology IDEF0 enable to improve quality and depth of elaboration, systematize information, decrease number of mistakes, improve design documentation and etc. The methodology IDEF0 is the most suitable for the business-processes modeling. The system is totality of interactive work or functions in the notation IDEF0. At the same time the system's functions are analysed regardless of the objects operated by them and it gives a chance to model clearly logic and interaction of the organisation's processes [Маклаков С.В. p. 240].

Thus, it is reasonable to use the methodology IDEF0 in the construction of the models of software of the industrial enterprises' competitiveness reflexive control because it gives a chance to improve quality and depth of elaboration, systematize information, decrease number of mistakes, improve design documentation and etc.

It was marked out the software tools of the company Infoservice BPwin (AllFusion Process Modeler) and ARIS 6.0 software products as the most efficient and low-cost software for modelling of the enterprise's data system. It is possible to ensure the most effectively and with minimal time expenditure the system of the industrial enterprises' competitiveness reflexive control by all necessary information with the help of these software tools.

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